DATA ANALYTICS AND APPLIED MATHEMATICS (DAAM)
e-ISSN: 2773-4854
VOL. 2, ISSUE 1, 028 – 037
DOI: https://doi.org/10.15282/daam.v2i1.6472

ORIGINAL ARTICLE

Crime index trends and patterns in Kelantan

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ABSTRACT – Crimes are a social nuisance and has become major anxiousness to the society where it involves the safety of the people in a country. This paper provides crime index overview in Kelantan from 2017 to 2019 that consists of both violent crimes and property crimes. The violent crimes involve murder, rape, robbery and voluntarilyinjury cases. Meanwhile, property crimes include house break-in theft, vehicles theft and other theft (pickpocketing, snatch theft and etc.). The purpose of this paper is to study the relationship between age, gender, ethnic and district with the crime index. In addition, the objective is to identify and get better understanding of the most common crime index and also to identify which area has the highest crime index in Kelantan. A total of 5,569 cases were reported within this three-year period and the data were collected from Kelantan Contingent Police Headquarters. The descriptive analysis, spearman' rho correlation and multiple regression analysis were performed, and the findings were then illustrated via graphs and tables. The major results have shown that Kota Bharu has the highest crime index and age, gender and district has significant relationship with crime index.

ARTICLE HISTORY
Received: 21/05/2021
Revised: 12/06/2021
Accepted: 29/06/2021

KEYWORDS
Crime index
Crime pattern and trend
Violent crimes Property crimes Kelantan

INTRODUCTION

Crime is a public wrong. Certainly, crime will be seen as the disease of civilization. Because of that, some people are too scared to leave their homes for fear of crime. Some people believe that there should more be done to avoid crime, while others assume that nothing can be done. When we watch worldwide news broadcasts on the internet, television, or other mass media, we regularly see references to crimes, since hundreds of crimes are committed practically every day. Criminal activities are unavoidable social issues raised by most countries around the world. These issues have major impact on countries all over the world. From the overall index crimes in Malaysia, it has shown that 85% are property crimes. As compared to violent crimes, property crime shows a more unstable pattern [1].This paper is an overview of the crime index trends and patterns in Malaysia specifically in Kelantan. It is significant to do research on the patterns of the numerous types of crime index that occur in this state in order to get better understanding of the most common crimes and to identify which areas that has the highest crime index cases. In order to ensure that the objectives of this study are established, it is required to collect and analyze the necessary data.

Generally, there are few points of importance. The first issue related to the trends and patterns of crimes in Malaysia. The second relates to the rise in the number of crime index in Malaysia, particularly in Kuala Lumpur and Selangor, as rapid urbanization occurs in these cities, and this issue may be related to Kelantan's urbanization. Finally, issues are relating to the concerning crime index in Kelantan that could have an impact on public safety. Each year, the crime index cases in the state are collected and analyzed to get the statistics. The crime index cases are calculated by considering rates of recorded and minor crime incidents relative to the total population of each state. The data collected and analyzed by the Department of Statistics of Malaysia and the Ministry of Home Affairs, recorded that 42.4% of the total index crimes in Malaysia reported in Kuala Lumpur and Selangor between 2010 and 2017. Kuala Lumpur is identified as a 'HIGH-threat' site of crime as the number of crimes at this city is the highest. This statement was proven in conjunction with the 2018 Annual Report on Crime and Security published by the Overseas Security Advisory Council (OSAC) under the Office of Diplomatic Security of the United States (Malaysia2018 Crime & Safety Report). The number of violent crime cases was smaller compared to cases of property crime. However, violent crime cases increased faster rather than property crime. From 2000 to 2009, the overall total number of criminal cases increased about 25.3 per cent [2]. The rate of crime varies between regions and countries and may have different effects.

Kelantan is at risk of urbanization. The increase of crime and violence is one of the frequent consequences of urbanization. As a result, if incidents of crime and violence tend to rise, an increase in the number of victims of crime can also be predicted. In Kelantan, juvenile cases raised by as much as 52% between January and June 2016 relative to the same timeline for the previous year with common neglectful acts such as robbery, burglary, and gang violence. In addition, compared to January 2015, domestic violence cases in Kelantan increased by 40% in January 2016. The nature of crime patterns in Kelantan has been clearly illustrated by the rise of injuvenile crime and the current rate of crime. Therefore, this study aims to (i) identify the trends and patterns of crime index in Kelantan, (ii) to identify the area that contributed

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the highest crime index in Kelantan and (iii) to investigate the relationship between crime index and age, gender, ethnic, and district. Further explanations of the literature survey, methodology and the results of the analysis will be discussed in the next sections of this study.

LITERATURE SURVEY

Since 1980, Malaysia has proclaimed crime to be the nation's number one enemy, as it is seen not only as a social issue but also as a danger to our national security. Crime is an evolving phenomenon, based on the social nature of a society that is governed by the basic interests and values of their collective beliefs. "Crime impacts all Malaysians, irrespective of race, religion, gender or income..." This claim was quoted by YB Dato's Seri Hishammuddin Tun Hussein, Minister of Home Affairs, in his opening remarks on Chapter 6 of the Government Transformation Plan (GTP) Roadmap on Crime Reduction.

The meaning of "crime" differs widely through geographic regions, socio-cultural and economic divisions between cultures along with time lags. It is undeniably clear that cases of crime are becoming more serious in our country, Malaysia. Generally, crime is an offense punishable by law whereby it is considered as an act of evil or illegal act. Crime was mentioned by [3] as a 'deviant behavior in which it has violates existing norms, which mightbe political, psychological, cultural, social, and also economic circumstances. However, Habibullah et al. [4] described crime as a breach of 'property rights' whereby the objective was on property crime. It does not provide a detailed picture of crime; thus, there are also other ways in which crimes occur. Sowmyya [5] has mentioned that crime is strongly disapproved by society whereby it is an offense that violates the law of the state. The author also defined crime as acts or omissions prohibited by law which may be punished by imprisonment or fines. Crime is assumed to have been higher in the most industrialized and heavily populated regions, like major suburbs, suburbs or metropolitan areas, relative to underdeveloped areas such as rural areas [2]. Soh [6] stated that criminal activity in the same city relatively higher in the city centers rather than in the suburban.

CRIME INDEX

Crime index is determined by considering the reported and minor crime rate compared to the total population of each state. ACP Amar Singh Sidhu, in his paper "The Rise of Crime in Malaysia: An academic and statistical analysis", which was presented during the Conference of the Commissioners of Police/Chief Police officers/Commandants/Commander Brigades on 23 and 24th May 2005 has claimed that the term "index crime" as a measurement of the current sense of crime in the country. Index crimes or crime index described as crimes reported with sufficient certainty and importance to be relevant as an index of the crime situation. Since the rate of crime in Malaysia has been recorded high, the government's concern about crime is relevant. Crime index consists of 13 different forms of crimes, either 'property' or 'violent'. Violent crimes identified as common in Malaysia alongside several other indexes and street crimes (OSAC, 2015). In Malaysia, car theft, house break-ins and motorcycle theft accounted for 56% of the total of 211,645 crimes registered in 2008. According to the former Inspector-General Police (IGP), Tan Sri Musa Hassan said that the total police force in Malaysia is approximately 98,747 to take control of the whole nation of 27 million people. This clearly shows that Malaysia had a police shortage as the international optimal ratio level is 1:250 [6].

The Royal Malaysia Police Force classifies crimes into two broad categories. The first type is property crime, which includes all crimes that involve loss of property during which violence by the criminal is not used. Housebreaking and robbery crimes were included under this category. Second, violent crime usually involving gun offences, is fairly common and important in situations where there is murder, attempted murder, gang robbery with and without a firearm, firearm robbery, robbery without a firearm, rape and, lastly, voluntary injury. Some researchers have categorized crime as violent and property crimes [4], [7], [8], [9], [10], [11], [12]. Based on the statistics provided by Department of Statistics Malaysia (DOSM) 2020, the crime index ratio being recorded are rise. In 2019, the crime index ratio for Malaysia per 100,000 population increased to 256.6 as opposed to 273.8 in 2018.

VIOLENT CRIME

Violent crimes generally relate to crimes against humans and to the extreme way in which they have caused harm to an individual, to his nature or to property damage. Habibullah et al. [4] described violent crime as an illegal behavior and obviously an act of brutality - force attacks committed mostly in taking of individual’s property or the life. Besides that, Dambazau [11] claimed that it is an act of taking victim’s property forcefully that it could cause injury or death. In addition, Soh [6] clarified that violent crime is typically a crime of violence that is sufficiently frequent and severe to cause harm. Ajaegbu [10] also stated that violent crime is the most 'inhuman' offences that continues to haunt communities in which contribute to violence and economic downturns.

Murder, attempted murder, gang robbery with and without a firearm, firearm robbery, robbery without a firearm, rape and, lastly, voluntary injury are classified as violent crime stated by [4], [6]. Killing someone with intention comes under the crime of murder. This is when a person takes action that he knows is imminently dangerous, likely to result in death or injury or serious damage to other people's bodies, and he does so without any justification for incurring the risk of death or injury, as stated above. The murder crime is subject to a mandatory life sentence if prosecuted. It means that the presiding judge has no power to give a lesser punishment. Murder cases are often heard at a Crown Court in front of a judge and jury.

Besides, in English law, robbery is described in accordance with Section 8(1) of the 1968 Theft Act. Accordingto the law, 'an individual is charge for theft if he steals, either immediately before or at the time of doing so, either to do so, imposes force on any person, or attempts to force any person in fear of being then and their subject to force' [13]. In addition, robbery is also classified as action practiced by gang-affiliated young people as part of the social development policy of this peer group. This is often a form of criminal opportunism and 'taking the moment' also called as gang robbery.

Rape is defined as the assault of the mouth, vagina or anus by any part of the perpetrator's body or any object used without the victim's consent. According to the Malaysian Criminal Code: rape is described as sexual intercourse with a woman against her will or without her consent. In addition, sexual contact with a woman is classified as rape if her consent is gained by placing her in fear of death or injury. Second is when she is unable to understand the nature and effects of what she consents to. Ultimately, when its approval or consent is obtained based on the position of authority, a personal friendship, or any other relationship of trust. Based on law, sexual intercourse with or withoutconsent involving girl under the age of 16 is also rape.

Voluntarily causing hurt is explained on the basis of Section 320-338 of the Criminal Code (Act 574), Laws of Malaysia; anyone who acts in which causing harm intentionally to any individual, or aware that he is possibly to cause harm to any individual, thus causing harm to any person. Based on the Indian Penal Codem in 1860, it is whoever, apart from the case defined in section 334, knowingly lead to harm using of any tool for shooting, stabbing or cutting, or by any object used as a tool of attack, is likely to cause death, or by means of fire or other heated material, or by any poison or corrosive material, or by any explosive material, or by any substance that is harmful to the human body for inhalation, swallowing, or receiving into the blood, or by any animal, punishable with imprisoned for a term of up to three years, or with a fine, or both.

PROPERTY CRIME

In the meantime, property crimes are acts conducted on properties, without force in taking or stealing goods. This statement is in line with what has been described by [6] where property crimes is offenses that involve propertyloss in which the criminals do not use violence. Some researchers have argued that property crimes are criminal offences with or without violence, and violent crimes include robbery, pillaging, pick-pocketing, vandalism, and others, while non-violent property crimes include burglary, vandalism, larceny, theft, wrecking, pillaging, robbery, house and store breaking, and vehicle theft [4], [6], [10].

The crimes for which materialistic property is the target are known as property crimes such as burglary. Illegally entering the premises and committing robbery is called burglary [5]. Burglary happens when someone"intends to enter [a place] without the permission of a person in lawful possession and with the intention of stealing or committing a felony." Many states and the Model Criminal Code have the same general concept of burglary in which an unlawful breach and entering into a house or an inhabited place with the intention of committing a crime inside. It was initially established under law, but states introduced the basic principle of burglary into their penal codes,though with some small adjustments ("Burglary Overview - FindLaw", n.d.).

According to the rules used by the International Criminal Court (ICC), theft occurs when an offender takes owner's property for his or her personal use, without the consent of the owner, in a military confrontation. Basically, pillage is robbery in the pretext of war. This is in line with what [14] stated in his article that the ICC and the existing international criminal courts where they are the components of the crime that give it a unique legal shape. In its modern form, the crime of pillaging is commonly defined as the illegal theft of property during military confrontation.

The most widespread crimes in the world are pickpocketing. Pick pocketing is a type of theft that involving stealing money or other valuables item from an individual or a victim's pocket without them realizing the crime at the time. Considerable strength and skill may require for trickery and thief who works in this way is known as a pickpocket. And since there are no weapons involved, pickpockets that do get caught face minimal prison time. In other meaning, pickpockets are thieves who steal wallets, passports, and sometimes other valuables item from people's clothes and bags asthey walk in or in public places.

CRIME INDEX WITH AGE, GENDER AND URBANIZATION

In criminology, the relationship between age and crime are the most well-tested and the theory of involvement in crime diminishes with age is one of the oldest and generally accepted. There is a possible theory that the connection between age and criminal activity is clarified by physical growth and ageing. Criminologists claim that gender difference in crime is universal; women are often and anywhere less likely than men to commit crime [15]. The social process by which cities expand and communities become industrialized is called as urbanization. Urbanizations arise as people migrate into urban areas to look for economic opportunities and enhance their quality of life. The rise in crime is associated with rapid urbanization [6], [16], [17]. Frequent incidents of crime in urban areas may give rise to concern, anxiety and fear among urban residents that they will be victims of crime instead of viewing urban areas as a place of economic opportunity, safe living and quality of life for residents [6]. It also offers all the features of the crime opportunity: the suspect, the attractor/victim and the areas where the crime is carried out and the offenders flee or hide or else in secluded places [7], [8].

METHODOLOGY

Data is collected from the Kelantan Contingent Police Headquarters (Ibu Pejabat Polis Kontinjen Kelantan), Malaysia to see the trends and pattern of crime index in Kelantan state. The purpose of this study is to identify the relationship between crimes committed and specified variables. The data used are the number of crime index cases in Kelantan where it was recorded on daily basis. Violent and property crimes which are two groups of crime cases shown in the crime index statistics. The target population for this study is all the citizens of Kelantan. The data was described using descriptive statistics. The crime situation was evaluated on the basis of crime index cases. The variables involve are; dependent variable (crime index), independent variables (categorical data: age, gender, ethnic and district). Examples of categorical data are gender (male and female), ethnic (Malay, Indian, Chinese and others), and age group (12 – 17 years, 18 – 30 years, 31 – 40 years, 41 – 50 years, 51 years and above).

Parampreet et al. [18] stated that when conducting research statistical analysis, descriptive analysis is a first step conducted before proceeding with inferential statistics. This analysis method will show the trends and patterns of crimes in Kelantan through bar graph (uptrend or downtrend). Bar graph is used to illustrate the overall pattern of crime for both violent and property crime from 2017 to 2019. In the normality test, the non-parametric technique used for further analysis as the samples are not normally distributed.

A numerical overview of the strength and direction of the linear relationship between the Independent Variables (IVs) and Dependent Variable (DV) can be generated by correlation coefficients [19]. The Spearman's rho Correlation Coefficients is used to determine the correlation between only two variables. The DV is crime index and others IVs are age group, gender, ethnic and district. The relationship between variables has strong, moderate or weak relationships are measured with certain values. The value of 0.70 and above indicates that the relationship is strong, within the range 0.40 to 0.60 is considered moderate and less than 0.40 is weak [20]. The closer the r_S value with zero, the weaker the association between variables. The closer the value to +1 indicates that the association between two variables are positively strong.

Multiple regression used to test the relationship of more than one dependent and independent variables. This method helps to determine the strength of the influence that the independent variables have on a dependent variable. For instance, investigate the relationship between crime index with age, gender, ethnic and district. However, to perform this method of analysis, few assumptions must be fulfilled. First, there must be linear relationship between variables. Second, the residuals are normally distributed. Third, there is no multicollinearity or the observation is independence. The last assumption is homoscedasticity where the residual variance should be constant. In this analysis, the relationships of variables analyzed and a linear equation is formulated. The general equation for multiple regression is formulated [21] as in Equation 1 below:

$$y = \alpha + \beta 1x1 + \beta 2\,x2 + \beta 3\,x3 + \beta 4x4 \tag{1}$$

where
y = Dependent Variable
x = Independent Variable
α = Regression Constant
β = Beta Coefficient
n = Number of Variable

RESULTS AND DISCUSSION

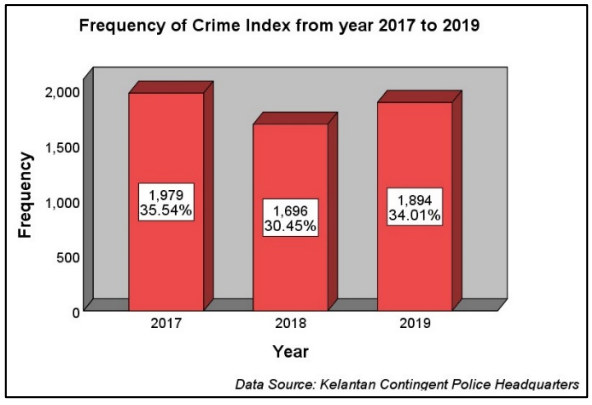

Figure 1(a). Frequency of crime index from year 2017-2019.

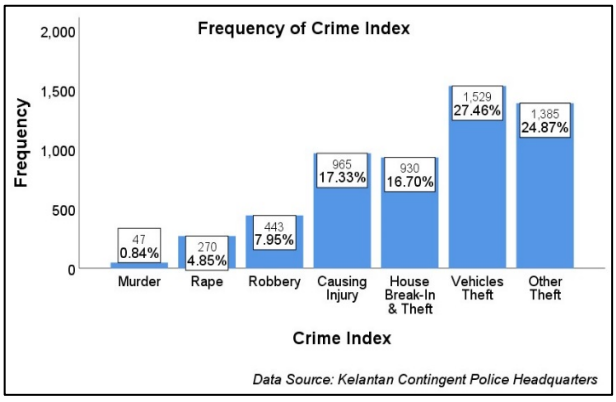

Figure 1(b). Frequency of crime index.

Figure 1. Crime index in Kelantan, 2017 – 2019.

Figure 1(a) illustrates the trends and pattern of crime index in Kelantan from the year 2017 until 2019 using bar chart. The crime index ratio for 2017, 2018 and 2019 are; 1,979 (35.54%); 1,696 (30.45%); and 1,894 (34.01%), respectively.

From the year 2017 to 2018, the crime index declined about 5.09%. However, crime index rises from 30.45% (2018) to 34.01% in 2019. It shows that about 3.56% of crime index increased in a year. Crime index consists of both violent crimes and property crimes. Based on Figure 1(b), murder, rape, robbery and causing injury are classified as violent crimes. Meanwhile, house break-in & theft, vehicles theft and other theft are classified as property crimes. The highest crime index from 2017 to 2019 is vehicles theft with 1,529 (27.46%). Next, other theft is the second highest crime index in Kelantan which is 1,385 (24.87%) followed by causing injury 965 (17.33%), house break-in & theft 930 (16.70%), robbery 443 (7.95%) and rape 270 (4.85%). The lowest crime index between 2017 and 2019 is Murder which is only 47 cases (0.84%).

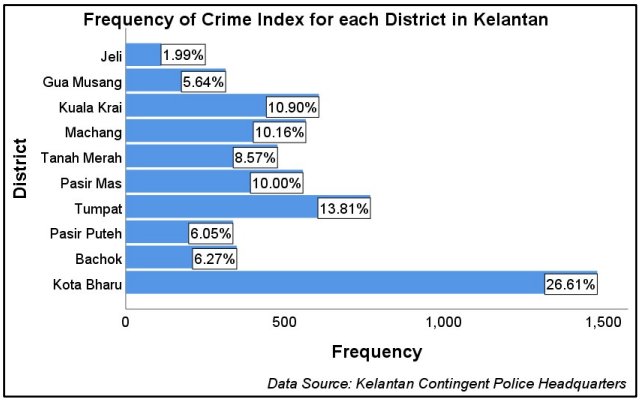

Figure 2. Crime index at each District in Kelantan.

Figure 2 is a horizontal bar graph that shows the frequency and the percentages of the crime index at each district in Kelantan. Based on Figure 2, the highest crime index in Kelantan is at Kota Bharu which is 1,482 (26.61%). The second highest crime index is Tumpat 769 (13.81%) followed by Kuala Krai 607 (10.90%). Both districts Machang and Pasir Mas has only slight different of the frequency percentage of crime index which is 566 (10.16%) and 557 (10.00%), respectively. There are five districts that have percentages of crime index below than 9% which are Tanah Merah 477 (8.57%), Bachok 349 (6.27%), Pasir Puteh 337 (6.05%), Gua Musang 314 (5.64%) and the lowest crime index is at Jeli 111 (1.99%). The visualisation has answered the research question where the area or the district that have the highest crime index is identified which is Kota Bharu.

Based on Table 1, it shows that out of 5,569 offenders, about 5,299 (95.2%) are male and 270 (4.8%) are female. From Table 1, the age group of 18 – 30 years has the highest number of offenders with 2,899 (52.1%). The second highest age group is 31– 40 years with 1,554 (27.9%) offenders. Followed by the next age group of 10 – 17 years accumulated 493 (8.9%) and then 41 – 50 years age group which has 461 (8.3%) of offenders. The least frequency and percentage of age group that commit the crime index is group of 51 years and above with 162 (2.9%). The frequency by ethnicity of the offenders in Table 1 shows that majority of the perpetrator are Malay with the frequency of 5,317 (95.5%). This indicates that most of the Kelantan's residents are Malay or Bumiputera. There are 76 (1.4%) Chinese offenders and followed by 27 (0.5%) Indian. Meanwhile, 149 (2.8%) of the offenders group as other ethnic where they are from other country such as Myanmar, Bangladesh, Thai and many more.

Table 1. Variables of crime index in Kelantan from 2017 to 2019.

	Variable	Frequency	Percentage (%)
Gender	Male	5299	95.2
	Female	270	4.8
Age	10 – 17 years	493	8.9
	18 – 30 years	2899	52.1
	31 – 40 years	1554	27.9
	41 – 50 years	461	8.3
	51 years and above	162	2.9
Ethnic	Malay	5317	95.5
	Indian	27	0.5
	Chinese	76	1.4
	Others	149	2.7

Data Source: Kelantan Contingent Police Headquarters

Table 2. Results of skewness and kurtosis.

	Skewness	Kurtosis
Independent variable (IV)		
Age	0.801	0.703
Gender	4.206	15.692
Ethnic	4.786	21.643
District	0.188	-1.240
Dependent Variable (DV)		
Types of Crime	-0.640	-0.438

A data set is believed to disperse normally if the skewness is within ± 2.00 and the kurtosis is within ± 7.00. Table 2 shows the skewness for age, district and types of crime located within the ranged from -0.640 to 0.801 and the kurtosis ranged from -1.242 to 0.703 indicates that the data is normally distributed. However, two values of skewness and kurtosis detected above the range of normality which are gender and ethnic with the value (4.206, 15.692) and (4.786, 21.643), respectively which indicates that the data is not normally distributed.

Since the data is not normally distributed, nonparametric statistics is used for further statistical data analysis. In this paper, the relationship between the IVs and DV examined by using Spearman's rho Correlation Coefficient Analysis. The findings of the correlations are summarized and presented in the Table 3.

Table 3. Results of Spearman's rho correlation coefficient analysis.

		Dependent Variables (Y)
		Crime Index
Age, X_1	Spearman's rho Correlation	0.037
	Sig. (2-tailed)	0.005
Gender, X_2	Spearman's rho Correlation	0.097
	Sig. (2-tailed)	0.000
Ethnic, X_3	Spearman's rho Correlation	0.011
	Sig. (2-tailed)	0.394
District, X_4	Spearman's rho Correlation	0.070
	Sig. (2-tailed)	0.000

* Correlation is significant at the 0.05 level (2 tailed)

The statistical results of Spearman's correlation coefficient analysis are shown in Table 3. Based on Table 3, the coefficients for all variables are positive. The correlation between age and crime index has a value of 0.037; gender is the highest among other IVs with 0.097; ethnic has recorded the lowest at 0.011; and district with 0.070. According to Uyanik and Guler [21], all the independent variables age (0.037), gender (0.097), ethnic (0.011) and district (0.070) have positive weak relationship with the DV which is crime index.

Multiple linear regression used to examine the relationship between one DV and IVs. The purpose of this analysis is to have better understanding upon the relationship between crime index (DV) with age, gender, ethnic and district (IVs). Assumptions for this analysis are the residuals are normally distributed, linearity, no multicollinearity of the data and the variances of the residuals are homoscedastic.

Table 4. Model Summary[b].

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.121[a]	.015	.014	1.494

a. Predictors: (Constant), Age, Gender, Ethnic, District

b. Dependent Variable: CrimeIndex

From Table 4, *R*-Square (R^2) value represents the variance's percentage in DV which can be explained by IVs. The (R^2) is 0.015 in which it indicates that only 1.5% of the research result is significant to investigate the regression line. It means that 1.5% of the variability of DV (Crime Index) is significantly influenced by the four IVs (Age, Gender, Ethnic and District). An r-squared of 1.5% reveals that only 1.5% of the data fit the regression model and the value is not a good fit for the model. So, it can be assumed that the remaining of the percentages might be influenced by other IVs that are not stated in this study.

Table 5. ANOVA Table.

Model		Sum of Squares	df	Mean Square	*F*	Sig
1	Regression	185.294	4	46.324	20.744	.000[b]
	Residual	12425.169	5564	2.233		
	Total	12610.464	5568			

a. Dependent Variable: Crime Index
b. Predictors: (Constant),Age,Gender,Ethnic,District

The statistical significance of the total regression model is expressed by the *F*-value. It evaluates for the overall regression model whether it is a good fit for the data. ANOVA table in Table 5 illustrates the *F*-value with 20.744 while the *p*-value is small (0.000) which is less than 0.05. This indicates significant regression for crime index ($F_{4,5564}$ = 20.744, *p*-value < 0.05). The model as a whole is significant to predict crime index.

Table 6. Coefficients[a].

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	4.325	.122		35.339	.000
	Age	.059	.023	.034	2.548	.011
	Gender	.614	.094	.088	6.562	.000
	Ethnic	-.037	.037	-.013	-.998	.318
	District	.043	.007	.079	5.939	.000

Table 6 shows, the *t*-value of age is 2.548, gender is 6.562 and district is 5.939. Meanwhile, all of the *p*-value of age, gender and district are small which less than 0.05. Since these three IVs have positive *t*-value and small *p*-value (<0.05), they are statistically significant and positively related to crime index. However, ethnic has negative *t*-value (-0.998) with *p*-value larger than 0.05 (0.318>0.05). This shows that ethnic has no significant relationship with crime index. The slope coefficients which is unstandardized coefficients *B* will be used in the equation for the model where it is an indication to predict the value of dependent variable. Based on the result, an equation of multiple regression is as follow:

$$Y = 4.325 + 0.059X_1 + 0.614X_2 - 0.037X_3 + 0.043X_4 \quad (2)$$

where

Y = Crime Index
X_1 = Age
X_2 = Gender
X_3 = Ethnic
X_4 = District

Based on the Equation 2, the relationship between variables are understand in which for each unit gain in X_1, Y will increase by 0.059 unit while all other variables constant. Similarly, every 1-unit gain X_2 and X_4, by holding all other variables constant, the Y will increase by 0.614, and 0.043 units, respectively. However, Y will decrease by 0.037 for every unit gain by X_3.

Table 7. Collinearity tolerance and VIF results.

Model	Collinearity Tolerance	Statistics VIF
(Constant)		
Age	0.989	1.012
Gender	0.992	1.008
Ethnic	0.992	1.008
District	0.995	1.005

a. Dependent variable: crime index.

Table 7 shows the collinearity value of tolerance must be greater than 0.1 or 0.2 and Variance Inflation Factor (VIF) must be less than 5.0 or 10.0. As shown in Table 7, the values of collinearity tolerance are ranged from 0.989 to 0.995; while for the VIF values are ranged from 1.005 to 1.012. Since the values of tolerance are smaller than 1.00 and VIF lower than 10, these indicate that there is no multicollinearity where it has explained that there is no intercorrelation between variables.

Hypothesis testing

***H_1*: There is a significant linear relationship between Age of perpetrator and Crime Index in Kelantan.**

Based on the Table 6, the significant value of age is less than 0.05 (0.01 < 0.05). Therefore, this indicates that age of perpetrator has significant influence towards the crime index committed in Kelantan. Hence, H_1 is accepted.

***H_2*: There is a significant linear relationship between Gender of perpetrator and Crime Index in Kelantan.**
Referring to the Table 6, the significant value of gender is 0.00 which is less than 0.05 (0.00 < 0.05). This shows that gender of perpetrator has significant influence towards the crime index committed in Kelantan. Hence, H_2 is accepted.

***H_3*: There is a significant linear relationship between Ethnicity of perpetrator and Crime Index in Kelantan.**

Table 6 shows that the significant value of ethnic is higher than 0.05 (0.318>0.05). It can be concluded that ethnicity of perpetrator has no significant influence towards the crime index committed in Kelantan. Hence, H_3 is rejected.

***H_4*: There is a significant linear relationship between District and Crime Index in Kelantan.**

Based on the Table 6, the significant value of district is less than 0.05 (0.00 < 0.05). This notes that district has significant influence towardsthe crime index committed in Kelantan. Hence, H_4 is accepted.

DISCUSSION AND MAJOR FINDINGS

***H_1*: There is a significant linear relationship between Age and Crime Index in Kelantan.**

Age has significant relationship with crime index in Kelantan. According to Quetelet [22] and Farrington [23], the traditional sociological view that crime tends to peak in early adulthood or late adolescence at age 17 (slightly earlier for property crime than for violent crime) and then generally declines with age. In criminology, the age and crime relationship are the most well-tested and the theory of involvement in crime diminishes with age is one of the oldest and generally accepted. There is a possible theory that the connection between age and criminal activity is clarified by physical growth and ageing. Steffensmeier, 1983 has mentioned that physical abilities, such as strength, speed, prowess, endurance and violence, are useful for the effective commission of certain offences, and for defense. Decline of physical strength and energy with age can make crime too risky or ineffective, particularly when there are younger or stronger criminal rivals who will not be intimidated. Crime is rationally higher among younger and then decreases with age at some stage of life, to which offences are uncommon among older adults. The borders of crime-prone young ages extended by [24] where they said that: “In fact, the proportion of young men between 15 and 34 strongly predicts the incidence of murder, rape, assault and robbery in all societies around the world". Thus, this support significant relationship between age and crime index.

***H_2*: There is a significant linear relationship between Gender and Crime Index in Kelantan.**

Criminologists claim that gender difference in crime is universal; women are often and anywhere less likely than men to commit crime. Gender indicates one of the best predictors of crime, especially for violent crime. Data on arrest, self-reporting and victimization clearly indicate that both men and boys commit far more serious and non-serious offences than women and girls. Moreover, Denno [25] also stated that most of the crimes and violence involved men rather than females, and they were more likely to repeat their crimes in the future. The gender of offenders not only a single determinant, but it also relates to demographic, technological, educational, political and other variables. Since centuries ago, it has been seen that crime is a male profession. Some researchers rate 1:5 for females and males as prisoners; 1:20 for females and males as inmates; and 1:20 for females and males as juveniles. So, there is significant linear relationship between gender and crime index.

***H_3*: There is a significant linear relationship between Ethnic and Crime Index in Kelantan.**

The criteria of language, culture and religion describe ethnic groups in Malaysia. Malaysian ethnic groups are then classified according to these criteria. In Malaysia, there are more than 200 ethnic groups [26]. Based on the report by DOSM (2019), Kelantan’s population was 1.8 million people with the ethnic groups distribution; Malay (96.0%), Chinese (3.1%), Indian (0.3%), other (0.6%) in 2019. Therefore, the statement from DOSM has supported that the massive bulk of the population of Kota Bharu is ethnically Kelantan Malay. Since the majority of Kelantan’s population is from ethnic Malay, then there is no significant relationship between ethnic and crime index. This is because it has been shown that ethnic is not influenced by the potential for a person to commit crime.

***H_4*: There is a significant linear relationship between District and Crime Index in Kelantan.**

District in this study relate with the terms of urbanization where social process takes place and the cities grow. The societies were then become urban and the rapid urbanization lead to the problems of urbanization. [6] stated that when there are increased in population densities, rapid changes in socioeconomic structures and poorer living conditions, unpredictable crime often takes place. Many aspects of crime require human activity and cities' high population densities mean that almost any form of crime takes place there. Personal protection and security problems have been associated with urban 'life' and 'quality of life' and crime has become a vital benchmark for the quality of life of a community. It is claimed that

crime also rises as urbanization increases. In other words, the rate of crime in these areas is rising as urban areas get bigger. The highest crime index is at district Kota Bharu where it is a place where rapid urbanization takes place. Therefore, district has significant linear relationship with crime index.

CONCLUSION

From this research it can be concluded that the crime index in Kelantan had both an uptrend and a downtrend where the crime index decreased from year 2017 to 2018 and rising for the next year which is 2019. In addition, the age group of 18 – 30 years is the highest group and the age group of 51 years and above is the lowest group that commits a crime. It is proof that the crime index is rationally higher among younger people and then decreases with age at some stage of life, in which offences are uncommon among older adults. Male offenders commit more crimes than female offenders in Kelantan. This demonstrates that males are more likely than females to be involved in criminal activity. Kota Bharu district has recorded the highest crime index cases in Kelantan, which is a place where rapid urbanization takes place. Furthermore, this research also found that there is significant relationship between crime index with age, gender and district in Kelantan.

ACKNOWLEDGEMENT

The authors would like to thank Universiti Utara Malaysia for its support upon the completion of this research. We would also like to thank the Research and Innovation Management Centre in facilitating the management of this research work.

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